

Attachment for PTO-948 (Rev. 03/01, or earlier)
6/18/01

The below text replaces the pre-printed text under the heading, "Information on How to Effect Drawing Changes," on the back of the PTO-948 (Rev. 03/01, or earlier) form.

INFORMATION ON HOW TO EFFECT DRAWING CHANGES

1. Correction of Informalities -- 37 CFR 1.85

New corrected drawings must be filed with the changes incorporated therein. Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not been assigned to the application. If this information is provided, it must be placed on the front of each sheet and centered within the top margin. If corrected drawings are required in a Notice of Allowability (PTOL-37), the new drawings **MUST** be filed within the **THREE MONTH** shortened statutory period set for reply in the Notice of Allowability. Extensions of time may **NOT** be obtained under the provisions of 37 CFR 1.136(a) or (b) for filing the corrected drawings after the mailing of a Notice of Allowability. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

2. Corrections other than Informalities Noted by Draftsperson on form PTO-948.

All changes to the drawings, other than informalities noted by the Draftsperson, **MUST** be made in the same manner as above except that, normally, a highlighted (preferably red ink) sketch of the changes to be incorporated into the new drawings **MUST** be approved by the examiner before the application will be allowed. No changes will be permitted to be made, other than correction of informalities, unless the examiner has approved the proposed changes

Timing of Corrections

Applicant is required to submit the drawing corrections within the time period set in the attached Office communication. See 37 CFR 1.85(a).

Failure to take corrective action within the set period will result in **ABANDONMENT** of the application.

06/01/01

CW 0308065

U.S. PTO
09/873442
06/04/01

Subst. Form PTO-1449		Atty. Docket No.: SLD 2 035-3-3-1-1-1(III) P-3724-2-F1-C1-C3		Serial No.: Unknown	
APPLICANT'S(S) INFORMATION DISCLOSURE STATEMENT Page 1 of 10		Applicants: Sullivan			
		Filing Date: Herewith		Group: 3711	

U.S. PATENT DOCUMENTS							
Initial*	Document No.	Date	Name	Class	Subcl.	Filing Date	
RG	2,741,480	4.56 04/1952	Smith				
	2,973,800	3.61 09/1968	Muccino				
	3,053,539	9.62 06/1959	Piechowski				
	3,264,272	08/1966	Rees				
	3,313,545	4.61 09/1963	Bartsch				
	3,373,123	03/1968	Brice				
	3,384,612	05/1968	Brandt et al.				
	3,395,109	07/1968	Molitor et al.				
	3,458,205	7.69 04/1965	Smith et al.				
	3,502,338	03/1970	Cox				
	3,534,965	10/1970	Harrison et al.				
	3,572,721	03/1971	Harrison et al.				
	3,883,145	05/1975	Cox et al.				
	3,979,126	09/1976	Dusbiber				
	3,989,568	11/1976	Isaac				

FOREIGN PATENT DOCUMENTS							
Initial*	Document No.	Date	Country	Class	Subcl.	Translation?	
RG	494,031	10/1938	GB				
	2,245,580	01/1992	GB				
	2,248,067	03/1992	GB				
	2,264,302	11/1992	GB				
	2,291,811	2/1996	GB				

OTHER ART	
RG	A General Reference Manual, "The Chemistry of Polyurethane Coatings," Mobay Corporation, 1-16 (1988)
	Product Announcement, "New Polyurea System Offering Rapid Mold Times and Excellent Thermal Stability for Automotive Fascias Is Introduced by Mobay," PRNewswire, March 1, 1998
	Cytec Industries, Inc., "TMXD [®] (META) Aliphatic Isocyanates," brochure, pp. 2-11, 9/94
	Bayer Corporation, "Engineering Polymers RIM and Part Mold Design," brochure, pp. 1-85, 5/95

Examiner: <i>Heather Kanner</i>	Date Considered: 9-8-01
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* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if in conformance and not considered. Include copy of this form with next communication to applicant.

CW 0308066

Subst. Form PTO-1449 APPLICANT'S(S) INFORMATION DISCLOSURE STATEMENT Page 2 of 10		Atty. Docket No.: SLD 2 035-3-3-1-1-1(III) P-3724-2-F1-C1-C3 Applicants: Sullivan Filing Date: Herewith		Serial No.: Unknown <i>09/873, 642</i> Group: 3711	
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U.S. PATENT DOCUMENTS							
Initial*		Document No.	Date	Name	Class	Subcl.	Filing Date
<i>Re</i>		4,076,255	02/1978	Moore et al.			
		4,085,937	04/1978	Schenk			
		4,123,061	10/1978	Dusbiber			
		4,190,711	02/1980	Zdrahala et al.			
		4,218,543	08/1980	Weber et al.			
		4,248,432	02/1981	Hewitt et al.			
		4,272,079	06/1981	Nakade et al.			
		4,274,637	06/1981	Molitor			
		4,337,946	07/1982	Saito et al.			
		4,431,193	02/1984	Nesbitt			
		4,442,282	04/1984	Kolycheck			
		4,570,937	02/1986	Yamada			
		4,582,887	04/1986	Dominguez et al.			
		4,590,219	05/1986	Nissen et al.			
		4,607,090	08/1986	Dominguez			
		4,650,193	03/1987	Molitor et al.			

FOREIGN PATENT DOCUMENTS							
		Document No.	Date	Country	Class	Subcl.	Translation?
<i>Re</i>		2,291,812	<i>2/1996</i>	GB			
		2,137,841	<i>6.95</i>	Canada			
		0,589,647	<i>3.94</i>	EP Patent Application			
		0,630,665	<i>12/1994</i>	EP Patent Application			
		0,637,459	<i>2.95</i>	EP Patent Application			

OTHER ART	
<i>Re</i>	Bayer Corporation, "Engineering Polymers Properties Guide Thermoplastics and Polyurethanes," brochure, pp. 2-7, 28-29
	A Properties Guide, "Engineering Polymers Thermoplastics and Thermosets," Miles Inc., 1-23 (1994)
	Polyurethane Handbook, "Chemistry-Raw Materials-Processing Applications-Properties," edited by Oertel et al., Hanser/Gardner Publications, Inc., 101,102 (1994)

Examiner: <i>[Signature]</i>	Date Considered: <i>9-8-01</i>
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* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if in conformance and not considered. Include copy of this form with next communication to applicant.

CW 0308067

Subst. Form PTO-1449 APPLICANT'S(S) INFORMATION DISCLOSURE STATEMENT Page 3 of 10		Atty. Docket No.: SLD 2 035-3-3-1-1-1(III) P-3724-2-F1-C1-C3		Serial No.: Unknown 04/873,643	
Applicants: Sullivan		Filing Date: Herewith		Group: 3711	

U.S. PATENT DOCUMENTS							
Initial*	Document No.	Date	Name	Class	Subcl.	Filing Date	
<i>RLB</i> ↓	4,674,751	06/1987	Molitor et al.				
	4,679,795	07/1987	Melvin et al.				
	4,688,801	08/1987	Reiter				
	4,690,981	09/1987	Statz				
	4,695,055	9/1987	Newcomb et al.				
	4,714,253	12/1987	Nakahara et al.				
	4,762,322	08/1988	Molitor et al.				
	4,798,386	01/1989	Berard				
	4,848,770	07/1989	Shama				
	4,852,884	08/1989	Sullivan				
	4,858,923	08/1989	Gobush et al.				
	4,858,924	08/1989	Saito et al.				
	4,878,674	11/1989	Newcomb et al.				
	4,884,814	12/1989	Sullivan				
	4,911,451	03/1990	Sullivan et al.				
4,919,434	04/1990	Saito					

FOREIGN PATENT DOCUMENTS							
Document No.	Date	Country	Class	Subcl.	Translation?		

OTHER ART	
<i>RLB</i> ↓	Translated Claims for JP 1,795,357 publ. 1/19/93
	DuPont NUCREL 035 Resin, DuPont Company, Wilmington, DE 1989 (no date)
	ESCOR ACID TERPOLYMERS, EXXON Chemical Co.
	Translated Claims for JP 1,771,941 publ. 8/6/92

Examiner: <i>[Signature]</i>	Date Considered: <i>98-01</i>
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* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if in conformance and not considered. Include copy of this form with next communication to applicant.

CW 0308068

Subst. Form PTO-1449	Atty. Docket No.: SLD 2 035-3-3-1-1-1(III) P-3724-2-F1-C1-C3	Serial No.: Unknown 09/873,642
APPLICANT'S(S) INFORMATION DISCLOSURE STATEMENT Page 4 of 10	Applicants: Sullivan	
	Filing Date: Herewith	Group: 3711

U.S. PATENT DOCUMENTS

Initial*	Document No.	Date	Name	Class	Subcl.	Filing Date
Rs	4,957,297	09/1990	Newcomb et al.			
	4,979,746	12/1990	Gentiluomo			
	4,984,804	01/1991	Yamada et al.			
	4,986,545	01/1991	Sullivan			
	5,002,281	03/1991	Nakahara et al.			
	5,006,297	04/1991	Brown et al.			
	5,019,319	05/1991	Nakamura et al.			
	5,026,067	06/1991	Gentiluomo			
	5,035,425	07/1991	Edwards			
	5,045,591	09/1991	Meyer et al.			
	5,048,838	09/1991	Chikaraishi et al.			
	5,068,151	11/1991	Nakamura			
	5,072,944	12/1991	Nakahara et al.			
	5,096,201	03/1992	Egashira et al.			
	5,098,105	03/1992	Sullivan			
✓	5,104,126	04/1992	Gentiluomo			

FOREIGN PATENT DOCUMENTS

Document No.	Date	Country	Class	Subcl.	Translation?

OTHER ART

Examiner:

Heaven Hunter

Date Considered:

9801

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if in conformance and not considered. Include copy of this form with next communication to applicant.

CW 0308069

Subst. Form PTO-1449 APPLICANT'S(S) INFORMATION DISCLOSURE STATEMENT Page 5 of 10	Att'y. Docket No.: SLD 2 035-3-3-1-1-1(III) P-3724-2-F1-C1-C3	Serial No.: Unknown 09/873,643
	Applicants: Sullivan	
	Filing Date: Herewith	Group: 3711

U.S. PATENT DOCUMENTS

Initial*	Document No.	Date	Name	Class	Subcl.	Filing Date
Re	5,120,791	06/1992	Sullivan			
	5,142,835	09/1992	Mrocca			
	5,150,906	09/1992	Molitor et al.			
	5,156,405	10/1992	Kitaoh et al.			
	5,184,828	02/1993	Kim et al.			
	5,187,013	02/1993	Sullivan			
	5,197,740	03/1993	Pocklington et al.			
	5,219,973	06/1993	Slack et al.			
	5,222,739	06/1993	Horiuchi et al.			
	5,244,969	09/1993	Yamada			
	5,253,871	10/1993	Viollaz			
	5,273,286	12/1993	Sun			
	5,273,287	12/1993	Molitor et al.			
	5,274,041	12/1993	Yamada			
	5,281,651	01/1994	Arjunan et al.			
	5,300,334	04/1994	Niederst et al.			

FOREIGN PATENT DOCUMENTS

Document No.	Date	Country	Class	Subcl.	Translation?

OTHER ART

Examiner:

Date Considered:

9-8-01

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if in conformance and not considered. Include copy of this form with next communication to applicant.

CW 0308070

Subst. Form PTO-1449 APPLICANT'S(S) INFORMATION DISCLOSURE STATEMENT Page 6 of 10		Atty. Docket No.: SLD 2 035-3-3-1-1-1(III) P-3724-2-F1-C1-C3		Serial No.: Unknown 09/873,642	
		Applicants: Sullivan		Group: 3711	
		Filing Date: Herewith			

U.S. PATENT DOCUMENTS							
Initial*	Document No.	Date	Name	Class	Subcl.	Filing Date	
Rao	5,304,608	04/1994	Yabuki et al.				
	5,306,760	04/1994	Sullivan				
	5,312,857	05/1994	Sullivan				
	5,314,187	05/1994	Proudfit				
	5,324,783	06/1994	Sullivan				
	5,330,837	07/1994	Sullivan				
	5,334,673	08/1994	Wu				
	5,338,610	08/1994	Sullivan				
	5,368,304	11/1994	Sullivan et al.				
	5,368,806	11/1994	Harasin et al.				
	5,387,750	02/1995	Chiang				
	5,403,010	04/1995	Yabuki et al.				
	5,439,227	08/1995	Egashira et al.				
	5,480,155	01/1996	Molitor et al.				
	5,482,285	01/1996	Yabuki et al.				
5,484,870	01/1996	Wu					

FOREIGN PATENT DOCUMENTS							
Document No.	Date	Country	Class	Subcl.	Translation?		

OTHER ART							

Examiner: <i>Robert Smith</i>	Date Considered: 9-8-01
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* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if in conformance and not considered. Include copy of this form with next communication to applicant.

Subst. Form PTO-1449 APPLICANT'S(S) INFORMATION DISCLOSURE STATEMENT Page 7 of 10		Atty. Docket No.: SLD 2 035-3-3-1-1-1(III) P-3724-2-F1-C1-C3		Serial No.: Unknown <i>09/833,642</i>	
		Applicants: Sullivan		Filing Date: Herewith	
				Group: 3711	

U.S. PATENT DOCUMENTS							
Initial*	Document No.	Date	Name	Class	Subcl.	Filing Date	
<i>RG</i> <div style="border-left: 1px solid black; height: 100%; margin: 0 auto; width: 2px;"></div>	5,490,673	02/1996	Hiraoka				
	5,490,674	02/1996	Hamada et al.				
	5,492,972	02/1996	Stefani				
	5,553,852	09/1996	Higuchi et al.				
	5,586,950	12/1996	Endo				
	5,628,699	05/1997	Maruko et al.				
	5,668,239	09/1997	Nodelman et al.				
	5,674,137	10/1997	Maruko et al.				
	5,688,191	11/1997	Cavallaro et al.				
	5,692,974	12/1997	Wu et al.				
	5,730,665	03/1998	Shimosaka et al.				
	5,733,206	03/1998	Nesbitt et al.				
	5,733,207	03/1998	Sullivan et al.				
	5,733,428	03/1998	Calabria et al.				
	5,739,247	04/1998	Lesko et al.				
✓	5,739,253	04/1998	Nodelman et al.				

FOREIGN PATENT DOCUMENTS							
Document No.	Date	Country	Class	Subcl.	Translation?		

OTHER ART		

Examiner: <i>Lucy A. Thomas</i>	Date Considered: <i>9807</i>
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* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if in conformance and not considered. Include copy of this form with next communication to applicant.

CW 0308072

Subst. Form PTO-1449 APPLICANT'S(S) INFORMATION DISCLOSURE STATEMENT Page 8 of 10		Atty. Docket No.: SLD 2 035-3-3-1-1-1(III) P-3724-2-F1-C1-C3 Applicants: Sullivan Filing Date: Herewith		Serial No.: Unknown 091873,642 Group: 3711	
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U.S. PATENT DOCUMENTS							
Initial*	Document No.	Date	Name	Class	Subcl.	Filing Date	
<i>RCB</i> <div style="border-left: 1px solid black; height: 100%; margin-left: 5px;"></div>	5,750,580	05/1998	Mayer et al.				
	5,759,676	06/1998	Cavallaro et al.				
	5,779,561	07/1998	Sullivan et al.				
	5,779,562	07/1998	Melvin et al.				
	5,779,563	07/1998	Yamagishi et al.				
	5,783,293	07/1998	Lammi				
	5,792,008	08/1998	Kakiuchi et al.				
	5,797,808	08/1998	Hayashi et al.				
	5,800,284	09/1998	Sullivan et al.				
	5,803,831	09/1998	Sullivan et al.				
	5,810,678	09/1998	Cavallaro et al.				
	5,813,923	09/1998	Cavallaro et al.				
	5,816,937	10/1998	Shimosaka et al.				
	5,820,488	10/1998	Sullivan et al.				
	5,820,489	10/1998	Sullivan et al.				
	5,820,491	10/1998	Hatch et al.				

FOREIGN PATENT DOCUMENTS							
Document No.	Date	Country	Class	Subcl.	Translation?		

OTHER ART							

Examiner: <i>James Horan</i>	Date Considered: <i>9-8-01</i>
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* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if in conformance and not considered. Include copy of this form with next communication to applicant.

CW 0308073

Subst. Form PTO-1449 APPLICANT'S(S) INFORMATION DISCLOSURE STATEMENT Page 9 of 10		Atty. Docket No.: SLD 2 035-3-3-1-1-1(III) P-3724-2-F1-C1-C3		Serial No.: Unknown 09/873,642	
		Applicants: Sullivan			
		Filing Date: Herewith		Group: 3711	

U.S. PATENT DOCUMENTS							
Initial*	Document No.	Date	Name	Class	Subcl.	Filing Date	
	5,827,167	10/1998	Dougan et al.				
	5,830,087	11/1998	Sullivan et al.				
	5,833,553	11/1998	Sullivan et al.				
	5,833,554	11/1998	Sullivan et al.				
	5,836,833	11/1998	Shimosaka et al.				
	5,849,168	12/1998	Lutz				
	5,856,388	01/1999	Harris et al.				
	5,863,264	01/1999	Yamagishi et al.				
	5,873,796	02/1999	Cavallaro et al.				
	5,885,172	03/1999	Hebert et al.				
	5,888,437	03/1999	Calabria et al.				
	5,891,973	04/1999	Sullivan et al.				
	5,897,884	04/1999	Calabria et al.				
	5,899,822	05/1999	Yamagishi et al.				
	5,902,192	05/1999	Kashiwagi et al.				
	5,908,358	06/1999	Wu				


FOREIGN PATENT DOCUMENTS							
Document No.	Date	Country	Class	Subcl.	Translation?		

OTHER ART		

Examiner:	Date Considered: 9/8/09
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* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if in conformance and not considered. Include copy of this form with next communication to applicant.

Subst. Form PTO-1449 APPLICANT(S)' INFORMATION DISCLOSURE STATEMENT Page 10 of 10		Atty. Docket No.: SLD 2 035-3-3-1-1-1(III) P-3724-2-F1-C1-C3		Serial No.: Unknown 09/873,642	
		Applicants: Sullivan			
		Filing Date: Herewith		Group: 3711	

U.S. PATENT DOCUMENTS							
Initial*	Document No.	Date	Name	Class	Subcl.	Filing Date	
<i>Ka</i> 	5,919,100	07/1999	Boehm et al.				
	5,919,862	07/1999	Rajagopalan				
	5,922,252	07/1999	Stanton et al.				
	5,929,189	07/1999	Ichikawa et al.				
	5,935,021	08/1999	Kashiwagi et al.				
	5,947,842	09/1999	Cavallaro et al.				
	5,947,843	09/1999	Calabria et al.				
	5,959,059	09/1999	Vedula et al.				
	5,976,035	11/1999	Umezawa et al.				
	5,984,807	11/1999	Wai et al.				

FOREIGN PATENT DOCUMENTS							
Document No.	Date	Country	Class	Subcl.	Translation?		

OTHER ART							

Examiner: <i>Naesun Kim</i>	Date Considered: <i>9-8-01</i>
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* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if in conformance and not considered. Include copy of this form with next communication to applicant.



#4
Reconsideration
SZ 1-12024

P-3724-2-FI RECEIVED

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

JAN 11 2002

In re patent application of Michael J. Sullivan
Serial No.: 09/873,642
Filing Date: June 4, 2001
For: GOLF BALL HAVING MULTI-LAYER COVER WITH UNIQUE
OUTER COVER CHARACTERISTICS

TC 3700 MAIL ROOM

Examiner: R. Gorden

Group Art Unit: 3711

Commissioner for Patents & Trademarks
Washington, DC 20231

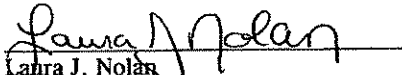
Sir:

RESPONSE

This is in response to the Office Action of August 14, 2001. Please consider the following remarks.

CERTIFICATE OF MAILING (37 C.F.R. 1.8a)

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class mail in an envelope addressed to: Commissioner of Patents & Trademarks, Washington, D.C. 20231, on this 6th day of November, 2001.


Laura J. Nolan

CW 0308076

REMARKS

Reconsideration of the present application and consideration of the response are respectfully requested. Claims 1 to 17 are currently pending, and no claims have been amended.

The Office Action mailed August 14, 2001 addressed Claims 1 to 17. Claims 1 to 17 were rejected.

Claims 1 to 17 were rejected under the judicially created doctrine of obvious-type double patenting as being unpatentable over claims 1 to 8 of U.S. Patent No. 6,210,293. The Examiner stated that although the conflicting claims are not identical, they are not patentably distinct from each other because the '293 patent and the present application claim golf balls comprising a core, an inner cover layer and an outer cover layer, and the inner cover layer is made from ionomer and acid and the outer cover layer is made from a polyurethane.

Although Applicant respectfully disagrees with the Examiner, in an effort to hasten prosecution, Applicant herein submits a Terminal Disclaimer which disclaims the terminal portion of any patent granting from the instant application, as required under MPEP § 1490. Applicant respectfully submits that this overcomes the rejection.

The Examiner is invited to telephone Applicant's attorney if it is deemed that a telephone conversation will hasten prosecution of the application.

09/873,642

P-3724-2-F1-C1-C1-C2

CONCLUSION

Applicant respectfully requests reconsideration and allowance of each of the presently rejected claims, claims 1 to 17. Applicant respectfully requests allowance of claims 1 to 17, the claims currently pending.

Respectfully submitted,

MICHAEL J. SULLIVAN

Customer No. 24492
Phone: (413) 322-2937

Date: November 6, 2001

By: Michelle Bugbee
Michelle Bugbee, Reg. No. 42,370
Spalding Sports Worldwide
Attorney for Applicant
425 Meadow Street
P.O. Box 901
Chicopee, MA 01021-0901

cc: Richard M. Klein, Esquire (SLD 2 0035-3-3-1-1-1(III))

CW 0308078



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

P-3724-2-F1-C1-C1-C2

JAN 11 2002

In re application of: Michael J. Sullivan
 Serial No.: 09/873,642 TC 3700 MAIL ROOM
 Filed: June 4, 2001
 Group No.: 3711
 Examiner: R. Gorden
 For: Golf Ball Having Multi-Layer Cover with Unique
 Outer Cover Characteristics

Commissioner of Patents and Trademarks
 Washington, D.C. 20231

**TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING
 REJECTION (37 CFR 1.321(b))**

Identification Of Person(s) Making This Disclaimer

Name(s) of disclaimant(s): Richard M. Klein
 having an address of: Fay, Sharpe, Fagan, Minnich & McKee, LLP
 1100 Superior Avenue, Seventh Floor
 Cleveland, OH 44114-2518

represent that I am

- ☐ an inventor of this invention
☐ an assignee of this invention
☒ Attorney of record in the present application

CERTIFICATE OF MAILING (37 CFR 1.8a)

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an enveloped addressed to the: Assistant Commissioner of Patents and Trademarks, Washington, D.C. 20231

Date: 11/6, 2001

Laura J. Nolan

(Terminal Disclaimer to Obviate a Double Patenting Rejection (37CFR 1.321(b))

{9-4}-page 1 of 4

01/09/2002 MWDLDER1 00000155 060308 09873642

01 FC:148 110.00 CH

CW 0308079

Identity of Assignee and Title of Disclaimant (if applicable)

The assignee is
Name of assignee: Spalding Sports Worldwide, Inc.
Address of assignee: 425 Meadow Street
Chicopee, MA 01013

Title of disclaimant authorized to sign on behalf of assignee:

Counsel

Recordal of Assignment in PTO

XX the assignment to Spalding Sports Worldwide, Inc. from Lisco Inc.
was recorded on Reel: 010232; Frame: 0251 on April 23, 1999;
the assignment to Lisco Inc. was recorded on Reel: 7750; Frame: 0242
on November 9, 1995
___ authorization for recordal of the assignment is separately attached

Extent of Interest

The extent of my (our) interest is in
XX the whole of this invention
___ a sectional interest in this invention as follows (here
state the exact interest of the disclaimant(s):

Statement Pursuant to 37 C.F.R. 3.73(b)

I the undersigned, have reviewed all the evidentiary documents in the chain of
title of the

XX patent application
___ patent

matter identified above and, to the best of my knowledge and belief, title is in the
assignee identified above which is seeking to take action.

(Terminal Disclaimer to Obviate a Double Patenting Rejection (37CFR 1.321(b))
{9-4}-page 2 of 4)

Disclaimer

I hereby disclaim the terminal part of any patent granted on the above-identified application, which would extend beyond the expiration date of the full statutory term of:

XXUnited States Patent No. 6,210,293, as presently shortened by any terminal disclaimer

___ Any patent granted on application number:

and hereby agree that any patent so granted on the above-identified application shall be enforceable only for and during such period that the legal title to said patent shall be the same as the legal title to

XXUnited States Patent No. 6,210,293

___ Any patent granted on application number:

this agreement to run with any patent granted on the above-identified application and to be binding upon the grantor, its successors or assigns.

Petitioner does not disclaim any terminal part of any patent granted on the above-identified application prior to the expiration date of the full statutory term of

XXUnited States Patent No. 6,210,293 as presently shortened by any terminal disclaimer

___ Any patent granted on application number:

In the event that it later: expires for failure to pay a maintenance fee, is held unenforceable, is found invalid, is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321(a), has all claims canceled by a reexamination certificate, or is otherwise terminated prior to expiration of its statutory term as presently shortened by any terminal disclaimer, except for the separation of legal title stated above.

(Terminal Disclaimer to Obviate a Double Patenting Rejection (37CFR 1.321(b))

{9-4}--page 3 of 4)

09/873,642

-4-

3724-2-F1-C1-C1-C2

Fee Status

(37 CFR 1.20(d) and 37 CFR 1.321)

XX other than a small entity -- fee \$110.00

 small entity--fee \$55.00

 verified statement attached

 verified statement filed on _____

Fee Payment

 Attached is a check in the sum of \$ _____

 The fee for this Disclaimer was previously paid on ; _____

XX Charge Account 06-0308 for any fee deficiency required by this paper.

XX Charge Account 06-0308 the sum of \$110.00.

Declaration

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Spalding Sports Worldwide, Inc.

Date: 10/31/2001

By: Richard M. Klein

Richard M. Klein, Counsel

Reg. No. 33,000

Fay, Sharpe, Fagan, Minnich & McKee, LLP

1100 Superior Avenue, Seventh Floor

Cleveland, OH 44114-2518

(Terminal Disclaimer to Obviate a Double Patenting Rejection (37CFR 1.321(b)))

{9-4}-page 4 of 4)

CW 0308082



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/873,642	06/04/2001	Michael J. Sullivan	P-3724-F1-C1-C3	5311

24492 7590 01/25/2002

MICHELLE BUGBEE, ASSOCIATE PATENT COUNSEL
SPALDING SPORTS WORLDWIDE INC
425 MEADOW STREET
PO BOX 901
CHICOPEE, MA 01021-0901

EXAMINER

GORDON, RAEANN

ART UNIT	PAPER NUMBER
----------	--------------

3711

DATE MAILED: 01/25/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/873,642	SULLIVAN, MICHAEL J.	
	Examiner	Art Unit	
	Raeann Gorden	3711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other:

Application/Control Number: 09/873,642
Art Unit: 3711

Page 2

DETAILED ACTION

Specification

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of 37 CFR 1.71(a)-(c):

- (a) The specification must include a written description of the invention or discovery and of the manner and process of making and using the same, and is required to be in such full, clear, concise, and exact terms as to enable any person skilled in the art or science to which the invention or discovery appertains, or with which it is most nearly connected, to make and use the same.
- (b) The specification must set forth the precise invention for which a patent is solicited, in such manner as to distinguish it from other inventions and from what is old. It must describe completely a specific embodiment of the process, machine, manufacture, composition of matter or improvement invented, and must explain the mode of operation or principle whenever applicable. The best mode contemplated by the inventor of carrying out his invention must be set forth.
- (c) In the case of an improvement, the specification must particularly point out the part or parts of the process, machine, manufacture, or composition of matter to which the improvement relates, and the description should be confined to the specific improvement and to such parts as necessarily cooperate with it or as may be necessary to a complete understanding or description of it.

The specification is objected to under 37 CFR 1.71 because the disclosed subject matter is not part of the original specification as filed with application 09/776,278 and US 6,210,293. As indicated by the continuing data, the present application is a continuation of application 09/776,278, which is a continuation of 09/470,196, now US 6,210,293. Accordingly, the disclosures of the pending applications and the patent should be identical. Page 5, lines 1-23 is new matter. Also, column 3, lines 39-54 of US 6,210,293 has been removed from the present application.

CW 0308085

Application/Control Number: 09/873,642
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Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-17 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The hardness for the outer cover layer is not supported by the original disclosure.

Terminal Disclaimer

The terminal disclaimer filed on 1-4-02 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of 6,210,293 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Response to Arguments

Applicant's arguments with respect to claims 1-17 have been considered but are moot in view of the new ground(s) of rejection.

CW 0308086

Application/Control Number: 09/873,642
Art Unit: 3711

Page 4

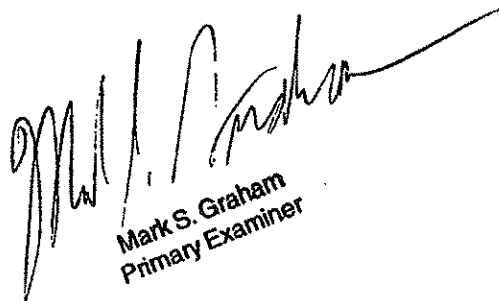
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raeann Gorden whose telephone number is 703-308-8354. The examiner can normally be reached on 7:30 AM to 5:00 PM Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Sewell can be reached on 703-308-2126. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3579 for regular communications and 703-308-3579 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1148.

rg
January 18, 2002



Mark S. Graham
Primary Examiner

CW 0308087



COPIES OF PAPERS
ORIGINALLY FILED

PATENT

H11
6/14/02

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF : Sullivan, Michael J.
FOR : IMPROVED MULTI-LAYER GOLF BALL
SERIAL NO. : 09/873,642
FILED : June 4, 2001
EXAMINER : Raeann Gorden
GROUP ART UNIT : 3711
ATTORNEY DOCKET NO. : P-3724-2-F1-C1-C1-CZ
SLD 2 0035-3-3-1-1(III)

RECEIVED
APR 25 2002
TECHNOLOGY CENTER R3700

Box Non-Fee Amendment
Assistant Commissioner For Patents
Washington, D.C. 20231

AMENDMENT

Dear Sirs:

In response to the Office Action of January 25, 2002, please amend the above-identified application as follows:

CERTIFICATE OF MAILING (37 CFR 1.8a)

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an enveloped addressed to the: Commission of Patents and Trademarks, Washington, D.C. 20231

Date: 4/16, 2002

Laura J. Nolan
Laura J. Nolan

A.
CW 0308088

09/873,642

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P-3724-2-F1-C1-C1-C2

IN THE TITLE:

Please replace the title on page 1 to read as follows:

IMPROVED MULTI-LAYER GOLF BALL

IN THE SPECIFICATION:

Please replace the heading on page 1 (above line 1) to read as follows:

Field of the Invention

Please replace the paragraph on page 1, lines 1-7 to read as follows:

This application is a continuation application of U.S. Application Serial No. 09/776,278 filed February 2, 2001, which is a continuation application of U.S. Application Serial No. 09/470,196 filed on December 21, 1999, now U.S. Patent No. 6,210,293, which is a continuation application of U.S. Application Serial No. 08/870,585 filed June 6, 1997, ^{now abandoned} which is a continuation of U.S. Application Serial No. 08/556,237 filed November 9, 1995, now abandoned, which is a continuation-in-part of U.S. Application Serial No. 08/070,510 filed on June 1, 1993, now abandoned.

Please delete the heading on page 1, line 8:

Field of the Invention

39

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[Please replace paragraph on page 2, lines 11-20 to read as follows:

A3
Ionomeric resins are polymers containing interchain ionic bonding. As a result of their toughness, durability and flight characteristics, various ionomeric resins sold by E. I. DuPont de Nemours & Company under the trademark Surlyn® and more recently, by the Exxon Corporation (see U. S. Patent No. 4,911,451) under the trademarks - "Escor®" and the trade name "Iotek®", have become the materials of choice for the construction of golf ball covers over the traditional "balata" (transpolyisoprene, natural or synthetic) rubbers. As stated, the softer balata covers, although exhibiting enhanced playability properties, lack the durability (cut and abrasion resistance, fatigue endurance, etc.) properties required for repetitive play.

[Please replace the paragraph on page 3, lines 21-26 to read as follows:

A4
In addition, multi-layered covers containing one or more ionomer resins have also been formulated in an attempt to produce a golf ball having the overall distance, playability and durability characteristics desired. For example, this was addressed by Spalding & Evenflo Companies, Inc., the assignee of the present invention, in U. S. Patent No. 4,431,193 where a multi-layered, regular sized, golf ball is disclosed.

[Please replace the paragraphs on page 4, line 31 to page 5, line 23 to read as follows:

A5
The present invention is directed to improved multi-layer golf ball cover compositions and the resulting multi-layer golf balls produced using the improved compositions. The novel multi-layer golf ball covers of the present invention include a first or inner layer or ply of a high acid (greater than 16 weight percent acid) ionomer blend or, more preferably, a low acid (16 weight percent acid or less)

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ionomer blend and second or outer layer or ply comprised of a comparatively softer, low modulus ionomer, ionomer blend or other non-ionomeric thermoplastic or thermosetting elastomer such as polyurethane or polyester elastomer. The multi-layer golf balls of the invention can be of standard or enlarged size. Preferably, the inner layer or ply includes a blend of low acid ionomers and has a Shore D hardness of 60 or greater and the outer cover layer comprised of polyurethane and has a Shore D hardness of about 45 (i.e., Shore C hardness of about 65).

☐ Please replace the paragraph on page 6, lines 9-14 to read as follows:

AG The combination of a low acid ionomer blend inner cover layer with a soft, relatively low modulus ionomer, polyurethane based elastomer outer cover layer provides for good overall coefficient of restitution (i.e., enhanced resilience) while at the same time demonstrating improved compression and spin. The outer cover layer generally contributes to a more desirable feel and spin, particularly at lower swing speeds with highly lofted clubs such as half wedge shots.

☐ Please replace the title on page 8, line 12 to read as follows:

A7 Detailed Description of the Invention

☐ Please replace the paragraphs on page 8, line 25 to page 9, line 10 to read as follows:

AB8 The low acid ionomers which may be suitable for use in formulating the inner layer compositions of the subject invention are ionic copolymers which are the metal, i.e., sodium, zinc, magnesium, etc., salts of the reaction product of an olefin having from about 2 to 8 carbon atoms and an unsaturated monocarboxylic acid having from about 3 to 8 carbon atoms. Preferably, the ionomeric resins are copolymers of ethylene and either acrylic or methacrylic acid. In some circumstances, an additional comonomer such as an acrylate ester (i.e., iso- or n-butylacrylate, etc.) can also be included to produce a softer terpolymer. The

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carboxylic acid groups of the copolymer are partially neutralized (i.e., approximately 10-75%, preferably 30-70%) by the metal ions. Each of the low acid ionomer resins which may be included in the inner layer cover compositions of the invention contains 16% by weight or less of a carboxylic acid.

The inner layer compositions include the low acid ionomers such as those developed and sold by E. I. DuPont de Nemours & Company under the trademark Surlyn® and by Exxon Corporation under the trademarks Escor® or tradename Iotek®, or blends thereof.

☐ Please replace the paragraph on page 10, lines 17-25 to read as follows:

A9
Preferably, the outer layer includes a blend of hard and soft (low acid) ionomer resins such as those described in U. S. Patent Nos. 4,884,814 and 5,120,791, both incorporated herein by reference. Specifically, a desirable material for use in molding the outer layer comprises a blend of a high modulus (hard), low acid, ionomer with a low modulus (soft) low acid, ionomer to form a base ionomer mixture. A high modulus ionomer herein is one which measures from about 15,000 to about 70,000 psi as measured in accordance with ASTM method D-790. The hardness may be defined as at least 50 on the Shore D scale as measured in accordance with ASTM method D-2240.

☐ Please replace the paragraph on page 10, line 29 to page 11, line 2 to read as follows:

A10
The hard ionomer resins utilized to produce the outer cover layer composition hard/soft blends include ionic copolymers which are the sodium, zinc, magnesium or lithium salts of the reaction product of an olefin having from 2 to 8 carbon atoms and an unsaturated monocarboxylic acid having from 3 to 8 carbon atoms. The carboxylic acid groups of the copolymer may be totally or partially (i.e. approximately 15-75 percent) neutralized.

☐ Please replace the paragraphs on page 11, lines 8-29 to read as follows:

A11
As discussed earlier herein, the hard ionomeric resins introduced under the designation Escor® and sold under the designation Iotek® are somewhat similar

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to the hard ionomeric resins sold under the Surlyn® trademark. However, since the Iotek® ionomeric resins are sodium or zinc salts of poly(ethylene-acrylic acid) and the Surlyn® resins are zinc or sodium salts of poly(ethylene-methacrylic acid) some distinct differences in properties exist. As more specifically indicated in the data set forth below, the hard Iotek® resins (i.e., the acrylic acid based hard ionomer resins) are the more preferred hard resins for use in formulating the outer layer blends for use in the present invention. In addition, various blends of Iotek® and Surlyn® hard ionomeric resins, as well as other available ionomeric resins, may be utilized in the present invention in a similar manner.

Examples of commercially available hard ionomeric resins which may be used in the present invention in formulating the inner and outer cover blends include the hard sodium ionic copolymer sold under the trademark Surlyn® 8940 and the hard zinc ionic copolymer sold under the trademark Surlyn® 9910. Surlyn® 8940 is a copolymer of ethylene with methacrylic acid and about 15 weight percent acid which is about 29 percent neutralized with sodium ions. This resin has an average melt flow index of about 2.8. Surlyn® 9910 is a copolymer of ethylene and methacrylic acid with about 15 weight percent acid which is about 58 percent neutralized with zinc ions. The average melt flow index of Surlyn® 9910 is about 0.7. The typical properties of Surlyn® 9910 and 8940 are set forth below in Table 1:

Please replace Table 1 on page 12, lines 1-22 to read as follows:

TABLE 1
Typical Properties of Commercially Available Hard
Surlyn® Resins Suitable for Use in the Inner and Outer Layer
Blends of the Present Invention

	<u>ASTM D</u>	<u>8940</u>	<u>9910</u>	<u>8920</u>	<u>8528</u>	<u>9970</u>	<u>9730</u>
Cation Type		Sodium	Zinc	Sodium	Sodium	Zinc	Zinc
Melt flow index, gms/10 min.	D-1238	2.8	0.7	0.9	1.3	14.0	1.6
Specific Gravity, g/cm ³	D-792	0.95	0.97	0.95	0.94	0.95	0.95
Hardness, Shore D	D-2240	66	64	66	60	62	63
Tensile Strength, (kpsi), MPa	D-638	(4.8) 33.1	(3.6) 24.8	(5.4) 37.2	(4.2) 29.0	(3.2) 22.0	(4.1) 28.0

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Elongation, %	D-638	470	290	350	450	460	460
Flexural Modulus, (kpsi) MPa	D-790	(51) 350	(48) 330	(55) 380	(32) 220	(28) 190	(30) 210
Tensile Impact (23°C) KJ/m ² (ft.-lbs./in ²)	D-1822S	1020 (485)	1020 (485)	865 (410)	1160 (550)	760 (360)	1240 (590)
Vicat Softening Temperature, °C	D-1525	63	62	58	73	61	73

Please replace Table 2 on page 13, line 1 to page 14, line 17 to read as follows:

TABLE 2
Typical Properties of Iotek® Ionomers

Resin Properties	ASTM Method	Units	4000	4010	8000	8020	8030
Cation type			zinc	zinc	sodium	sodium	sodium
Melt index	D-1238	g/10 min.	2.5	1.5	0.8	1.6	2.8
Density	D-1505	kg/m ³	963	963	954	960	960
Melting Point	D-3417	°C	90	90	90	87.5	87.5
Crystallization Point	D-3417	°C	62	64	56	53	55
Vicat Softening Point	D-1525	°C	62	63	61	64	67
% Weight Acrylic Acid			16		11		
% of Acid Groups cation neutralized			30		40		
Plaque Properties (3 mm thick, compression molded)	ASTM Method	Units	4000	4010	8000	8020	8030
Tensile at break	D-638	MPa	24	26	36	31.5	28
Yield point	D-638	MPa	none	none	21	21	23
Elongation at break	D-638	%	395	420	350	410	395
1% Secant modulus	D-638	MPa	160	160	300	350	390
Shore Hardness D	D-2240	—	55	55	61	58	59
Film Properties (50 micron film 2.2:1 Blow-up ratio)			4000	4010	8000	8020	8030
Tensile at Break MD	D-882	MPa	41	39	42	52	47.4
TD	D-882	MPa	37	38	38	38	40.5
Yield point MD	D-882	MPa	15	17	17	23	21.6

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	TD	D-882	MPa	14	15	15	21	20.7
Elongation at Break								
	MD	D-882	%	310	270	260	295	305
	TD	D-882	%	360	340	280	340	345
1% Secant modulus	MD	D-882	MPa	210	215	390	380	380
	TD	D-882	MPa	200	225	380	350	345
Dart Drop Impact		D-1709	g/micron	12.4	12.5	20.3		
Resin Properties		ASTM Method	Units		7010		7020	7030
Cation type					zinc		zinc	zinc
Melt Index		D-1238	g/10 min.		0.8		1.5	2.5
Density		D-1505	kg/m ³		960		960	960
Melting Point		D-3417	°C		90		90	90
Crystallization Point		D-3417	°C		--		--	--
Vicat Softening Point		D-1525	°C		60		63	62.5
%Weight Acrylic Acid					--		--	--
% of Acid Groups Cation Neutralized					--		--	--
Plaque Properties (3 mm thick, compression molded)		ASTM Method	Units		7010		7020	7030
Tensile at break		D-638	MPa		38		38	38
Yield Point		D-638	MPa		none		none	none
Elongation at break		D-638	%		500		420	395
1% Secant modulus		D-638	MPa		--		--	--
Shore Hardness D		D-2240	--		57		55	55

Please replace the paragraphs on page 14, line 18 to page 15, line 2 to read as follows:

Comparatively, soft ionomers are used in formulating the hard/soft blends of the inner and outer cover compositions. These ionomers include acrylic acid based soft ionomers. They are generally characterized as comprising sodium or zinc salts of a terpolymer of an olefin having from about 2 to 8 carbon atoms, acrylic acid, and an unsaturated monomer of the acrylate ester class having from 1 to 21 carbon atoms. The soft ionomer is preferably a zinc based ionomer made from

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an acrylic acid base polymer in an unsaturated monomer of the acrylate ester class. The soft (low modulus) ionomers have a hardness from about 20 to about 40 as measured on the Shore D scale and a flexural modulus from about 1,000 to about 10,000, as measured in accordance with ASTM method D-790.

ALL Certain ethylene-acrylic acid based soft ionomer resins developed by the Exxon Corporation under the designation Iotek[®] 7520 (referred to experimentally by differences in neutralization and melt indexes as LDX 195, LDX 196, LDX 218 and LDX 219) may be combined with known hard ionomers such as those indicated above to produce the inner and outer cover layers. The combination produces higher C.O.R.s at equal or softer hardness, higher melt flow (which corresponds to improved, more efficient molding, i.e., fewer rejects) as well as significant cost savings versus the inner and outer layers of multi-layer balls produced by other known hard-soft ionomer blends as a result of the lower overall raw materials costs and improved yields.

Please replace the paragraphs on page 15, line 29 to page 16, line 12 to read as follows:

In addition, test data collected by the inventor indicates that Iotek[®] 7520 resins have Shore D hardnesses of about 32 to 36 (per ASTM D-2240), melt flow indexes of 3 ± 0.5 g/10 min (at 190°C. per ASTM D-1288), and a flexural modulus of about 2500-3500 psi (per ASTM D-790). Furthermore, testing by an independent testing laboratory by pyrolysis mass spectrometry indicates that Iotek[®] 7520 resins are generally zinc salts of a terpolymer of ethylene, acrylic acid, and methyl acrylate.

Furthermore, the inventor has found that a newly developed grade of an acrylic acid based soft ionomer available from the Exxon Corporation under the designation Iotek[®] 7510, is also effective, when combined with the hard ionomers indicated above in producing golf ball covers exhibiting higher C.O.R. values at equal or softer hardness than those produced by known hard-soft ionomer blends. In this regard, Iotek[®] 7510 has the advantages (i.e. improved flow, higher C.O.R. values at equal hardness, increased clarity, etc.) produced by the Iotek[®] 7520 resin when compared to the methacrylic acid base soft ionomers known in the art (such as the

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Elongation at Break	D412	%	490
Taber Abrasion	D460, H-18	mg/1000 cycles	350

<u>Component¹ Properties</u>	<u>Part A (Isocyanate)</u>	<u>Part B (Resin)</u>
Viscosity @ 25°C, mPa·s	2500	2100
Density @ 25°C, g/cm	1.08	1.09
NCO, %	9.80	-----
Hydroxyl Number, Mg KOH/g	-----	88

¹Component A is a modified diphenylmethane diisocyanate (MDI) prepolymer and component B is a polyether polyol blend.

Please replace the paragraph on **page 20, lines 12-25** to read as follows:

A16 The various cover composition layers of the present invention may be produced according to conventional melt blending procedures. In the case of the outer cover layer, when a blend of hard and soft, low acid ionomer resins are utilized, the hard ionomer resins are blended with the soft ionomeric resins and with a masterbatch containing the desired additives in a Banbury mixer, two-roll mill, or extruder prior to molding. The blended composition is then formed into slabs and maintained in such a state until molding is desired. Alternatively, a simple dry blend of the pelletized or granulated resins and color masterbatch may be prepared and fed directly into the injection molding machine where homogenization occurs in the mixing section of the barrel prior to injection into the mold. If necessary, further additives such as an inorganic filler, etc., may be added and uniformly mixed before initiation of the molding process. A similar process is utilized to formulate the low acid ionomer resin compositions used to produce the inner cover layer.

Please replace the paragraph on **page 21, lines 18-22** to read as follows:

A17 The resulting golf ball produced from the low acid ionomer resin inner layer and the relatively softer, low flexural modulus outer layer provide for an improved multi-layer golf ball which provides for desirable coefficient of restitution, compression, spin and durability properties while at the same time offering the feel

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characteristics associated with soft balata and balata-like covers of the prior art.

Please replace the paragraph on page 22, line 32 to page 23, line 2 to read as follows:

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Coefficient of restitution (C.O.R.) was measured by firing the resulting golf ball in an air cannon at a velocity of 125 feet per second against a steel plate positioned 12 feet from the muzzle of the canon. The rebound velocity was then measured. The rebound velocity was divided by the forward velocity to give a coefficient of restitution.

AI9
Please replace the paragraph on page 23, lines 28-30 to read as follows:

The purpose behind producing and testing the balls of Table 5 was to provide a subsequent comparison in properties with the multi-layer golf balls of the present invention.

A20
Please replace the paragraph on page 25, lines 3-18 to read as follows:

With the above in mind, an outer cover layer composition was blended together in accordance with conventional blending techniques. The outer layer composition used for this portion of the example is a relatively soft cover composition such as those listed in U.S. Patent No. 5,120,791. An example of such a soft cover composition is a 45% soft/55% hard low acid ionomer blend designated by the inventor as "TE-90". The composition of TE-90 is set forth as follows:

Outer Cover Layer Composition TE-90

70480
Iotek® 8000 22.7 weight %
Iotek® 7030 22.7 weight %
Iotek® 7520 45.0 weight %
White MB¹ 9.6 weight %

¹White MB consists of about 23.77 weight percent TiO₂; 0.22 weight percent Uvitex® OB, 0.03 weight percent Santonox® R, 0.05 weight percent Ultramarine Blue™ and 75.85 weight percent Iotek® 7030.

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Please replace the paragraph on page 26, lines 13-24 to read as follows:

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A21 As it will be noted in finished balls 1-4, by creating a multi-layer cover utilizing the high acid ionomer resins in the inner cover layer and the hard/soft low acid ionomer resin in the outer cover layer, higher compression and increased spin rates are noted over the single layer covers of Table 5. In addition, both the C.O.R. and the Shore C hardness are reduced over the respective single layer covers of Table 5. This was once again particularly true with respect to the multi-layered balls containing the high acid ionomer resin in the inner layer (i.e. finished balls 1-4). In addition, with the exception of prior art ball 5 (i.e. the '193 patent), resistance to cutting remains good but is slightly decreased. As noted above, the prior art ball of the '193 patent suffers substantially in durability (as well as in resiliency) in comparison to the balls of the invention.

Please replace Table 6B on page 27, lines 10-23 to read as follows:

TABLE 6B
Finish Balls

<u>Ingredients:</u>	<u>6</u>	<u>I</u>
Inner Cover Layer Composition	A	D
Outer Cover Layer Composition	Estane® 4517	Surlyn® 9020
<u>Properties of Molded Finished Balls:</u>		
Compression	67	61
C.O.R.	.774	.757
Shore C Hardness	74	89
Spin (R.P.M.)	10,061	8,846
Cut Resistance	3-4	1-2

Please replace the paragraph on page 30, lines 1-9 to read as follows:

A23 In this regard, Top Grade or TG is a low acid inner cover ionomer resin blend comprising of 70.6% Iotek® 8000, 19.9% Iotek® 7010 and 9.6% white masterbatch. "959/960" is a 50/50 wt/wt blend of Iotek® 959/960. In this regard, Escor® or Iotek® 959 is a sodium ion neutralized ethylene-acrylic neutralized ethylene-acrylic acid copolymer. According to Exxon, Ioteks® 959 and 960 contain

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from about 19.0 to about 21.0% by weight acrylic acid with approximately 30 to about 70 percent of the acid groups neutralized with sodium and zinc ions, respectively. The physical properties of these high acid acrylic acid based ionomers are as follows:

Please replace the paragraph on page 30, line 29 to page 31, line 6 to read as follows:

A24 The data clearly indicates that higher C.O.R. and hence increase travel distance can be obtained by using multi-layered covered balls versus balls covered with single layers. However, some sacrifices in compression and spin are also noted. Further, as shown in comparing Example Nos. 12 vs. 13, Example Nos. 17 vs. 16, etc., use of lower acid level inner cover layers and relatively soft outer cover layers (i.e., 50 wt. % or more soft ionomer) produces softer compression and higher spin rates than the golf balls comprised of high acid inner cover layers. Consequently, use of blends of low acid ionomer resins to produce the inner layer of a multi-layer covered golf ball produces not only enhanced travel distance but also enhanced compression and spin properties.

Please replace the paragraph on page 32, lines 22-30 to read as follows:

A25 The mantle core is 1.57" and fits snugly in the 1.57" cavity. The hose clamp is attached to the 1.57" cavity and a mantle core is placed in inside. Urethane is mixed and poured into one of the dimpled cavities and the two halves are placed together and clamped, forcing out excess material and forming half the cover. The hose clamp is used to keep the two mold halves aligned during curing. When the cover material is set up enough (about 5 minutes), the two halves are separated and the 1.57" mold is replaced with the other 1.68" mold and the process is repeated. Both halves of the cover are now cast and the entire assemble is placed in an 125°F oven for 1 hour after which it can be opened and the ball removed.

Please replace Table 9 on page 33, lines 1-23 to read as follows:

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- TABLE 9

Core Data		23	24	25	26	27	28	29
Size	1.47"	1.47"	1.47"	1.47"	1.47"	1.47"	1.47"	1.47"
Weight	32.2	32	32.2	32	37.7	32.2	32	32.2
Comp	82	58	82	58	85	82	58	82
COR	768	772	768	772	794	768	772	768
Mantle Data		23	24	25	26	27	28	29
Material	8030/7030	8030/7030	8030/7030	8030/7030	None	8030/7030	8030/7030	8030/7030
Weight	37.8	38.1	37.9	38.1	37.8	38.1	38.1	37.9
Size	1.57"	1.57"	1.57"	1.57"	1.57"	1.57"	1.57"	1.57"
Comp	70	48	69	48	70	48	48	69
COR	781	785	786	788	781	785	785	786
Ball Data		23	24	25	26	27	28	29
Cover Material	Baytec® RE832	Baytec® RE832	Baytec® RE832	Baytec® RE832	Z-Balata	Z-Balata	Z-Balata	Z-Balata
Weight	45.4	45.5	45.5	45.2	45.3	44.8	45	65
Comp	75	64	73	60	80	66	50	65
COR	771	763	770	761	792	775	774	778
Shore C	65	65	65	65	84	84	84	84
Spin (rpm)	9560	8789	9285	8760	8796	8702	9072	8643
Cut	2	2	2	1.5	2	2	2	2
(1-good, 4-poor)								
Scuff	1.5	1.5	1.5	1.5	2	3	3	3
(1-good, 4-poor)								

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Please replace the paragraph on page 34, lines 12-17 to read as follows:

A27 The invention has been described with reference to the preferred embodiment. Obviously, modifications and alterations will occur to others upon reading and understanding the preceding detailed description. It is intended that the invention be construed as including all such modifications and alterations insofar as they come within the scope of the appended claims or the equivalents thereof.

IN THE CLAIMS:

Please delete claims 2 to 3, 7 and 12 to 14 without prejudice or disclaimer of the subject matter contained therein.

Please amend claims 1, 6, 8, 11 and 15 as follows:

1. (Amended) A golf ball comprising:

a core;

A28 an inner cover layer disposed on said core, said inner cover layer having a Shore D hardness of at least 60, said inner cover layer comprising a blend of two or more low acid ionomer resins, each containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid; and

an outer cover layer disposed on said inner cover layer, said outer cover layer having a Shore D hardness of about 64 or less, a thickness of from about 0.01 to about 0.07 inches, and comprising a polyurethane material.

6. (Amended) A golf ball comprising:

a core;

A29 an inner cover layer disposed about said core, said inner cover layer having a Shore D hardness of at least 60, said inner cover layer comprising a blend of two or more ionomeric resins, each containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid; and

an outer cover layer disposed on said inner cover layer, said outer cover layer having a thickness of from about 0.01 to about 0.07 inches, and

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A30 8.5 (Amended) The golf ball of claim 8 wherein said outer cover exhibits a Shore D hardness of about 64 or less.

Sub B3 A31 11. (Amended) A golf ball comprising:
a core;
an inner cover layer disposed on said core, said inner cover layer having a Shore D hardness of about 60 or more, said inner cover layer comprising an ionomeric resin including no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid and having a modulus of greater than about 15,000 psi; and
an outer cover layer disposed about said inner cover layer, said outer cover layer having a thickness of from about 0.01 to about 0.07 inches, and comprising a polyurethane material.

A32 15.9 (Amended) The golf ball of claim 11 wherein said outer cover exhibits a Shore D hardness of about 64 or less.

IN THE ABSTRACT:

Please replace the title on page 38 to read as follows:

IMPROVED MULTI-LAYER GOLF BALL

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REMARKS

Reconsideration of the present application and entry of the following amendment are respectfully requested. Claims 1 to 17 are currently pending, claims 1, 6, 8, 11 and 15 have been amended, and claims 2, 3, 7 and 12 to 14 have been canceled.

The Office Action mailed January 25, 2002 addressed claims 1 to 17. The Specification was objected to under 37 C.F. R. § 1.71, and claims 1 to 17 were rejected.

The specification of the present application was objected to under 37 CFR 1.71 because the disclosure was not identical to that of U.S. Application Serial No. 09/776,278, the parent of the present continuation application. While some changes were made to the specification of the present application for the purpose of further clarification of the claimed invention (i.e. the title was changed, some of the headings were slightly altered, several new paragraphs were added to the "Summary of the Invention" section of the application, etc.) these changes are believed to be supported by the specification of the parent application. However, in order to overcome to Examiner's procedural objection, and/or to Examiner's requirement of identical disclosures, the present application has now been further amended. Specifically, the present application has been amended so that it is once again identical, in a literal sense, to that of the parent application, with the exception of the cross-section paragraph. The cross-section paragraph has been amended to update the priority claim. In view of these amendments to the specification, it is respectfully submitted that the Examiner's 37 CFR 1.71 objection has been overcome.

Claims 1 to 17 were rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The Examiner stated that the hardness for the outer cover layer is not supported by the original disclosure.

Although Applicant respectfully disagrees, in an effort to hasten prosecution, claims 1, 6, 8, 11 and 15 have been amended, and claims 2, 3, 7 and 12 to 14 have

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been canceled. Applicant respectfully submits that this overcomes the rejection of claims 1 to 17 under 35 U.S.C. § 112, first paragraph. Applicant therefore respectfully requests that the rejection under 35 U.S.C. § 112, first paragraph be reconsidered and withdrawn.

A marked-up version of the changes requested in this Amendment is attached hereto. If the Examiner has any additional concerns regarding this application, the Examiner is invited to contact applicant's attorney at the telephone number listed below.

CONCLUSION

Applicant respectfully requests reconsideration and allowance of each of the presently-rejected claims. Applicant respectfully requests allowance of claims 1, 4 to 6, 8 to 11, and 15 to 17, the claims currently pending.

Respectfully submitted,

MICHAEL J. SULLIVAN

413-322-2937

April 16, 2002
Date

By Michelle Bugbee
Michelle Bugbee
Reg. No. 42,370
Attorney for Applicant
425 Meadow Street
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Attachment

Cc: Richard M. Klein, Esq. (SLD 2 035-3-3-1-1-1(III))

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE TITLE:

Please amend (i.e. additions are underlined and deletions are bracketed) the title on page 1 as follows:

**IMPROVED MULTI-LAYER GOLF BALL [HAVING MULTI-LAYER COVER WITH
UNIQUE OUTER COVER CHARACTERISTICS]**

IN THE SPECIFICATION:

Please amend the heading on page 1 (above line 1) as follows:

[Cross References to Related Applications] Field of the Invention

Please amend the paragraph on page 1, lines 1-7 as follows:

This [The present] application is a continuation application of U.S. Application Serial No. 09/776,278 filed February 2, 2001, which is a continuation application of U.S. Application Serial No. 09/470,196 filed on December 21, 1999, now U.S. Patent No. 6,210,293, which is a continuation application of U.S. Application Serial No. 08/870,585 filed June 6, 1997, which is a continuation of U.S. Application Serial No. 08/556,237 filed November 9, 1995, now abandoned, which is a continuation-in-part of U.S. Application Serial No. 08/070,510 filed on June 1, 1993, now abandoned.

Please amend the heading on page 1, line 8 as follows:

[Field of the Invention]

Please amend the paragraph on page 2, lines 11-20 as follows:

Ionomeric resins are polymers containing interchain ionic bonding. As a result of their toughness, durability and flight characteristics, various ionomeric resins sold by E. I. DuPont de Nemours & Company under the trademark Surlyn® and more recently, by the Exxon Corporation (see U. S. Patent No. 4,911,451) under the trademarks - "Escor®" and the trade name "Iotek®", have become the materials of choice for the construction of golf ball covers over the traditional "balata"

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(transpolyisoprene, natural or synthetic) rubbers. As stated, the softer balata covers, although exhibiting enhanced playability properties, lack the durability (cut and abrasion resistance, fatigue endurance, etc.) properties required for repetitive play.

Please amend the paragraph on **page 3, lines 21-26** as follows:

In addition, multi-layered covers containing one or more ionomer resins have also been formulated in an attempt to produce a golf ball having the overall distance, playability and durability characteristics desired. For example, this was addressed by Spalding & Evenflo Companies [Sports Worldwide], Inc., the assignee of the present invention, in U. S. Patent No. 4,431,193 where a multi-layered, regular sized, golf ball is disclosed.

Please amend the paragraphs on **page 4, line 31 to page 5, line 23** as follows:

The present invention is directed to improved multi-layer golf ball cover compositions and the resulting multi-layer golf balls produced using the improved compositions. The novel multi-layer golf ball covers of the present invention include a first or inner layer or ply of a high acid (greater than 16 weight percent acid) ionomer blend or, more preferably, a low acid (16 weight percent acid or less) ionomer blend and second or outer layer or ply comprised of a comparatively softer, low modulus ionomer, ionomer blend or other non-ionomeric thermoplastic or thermosetting elastomer such as polyurethane or polyester elastomer. The multi-layer golf balls of the invention can be of standard or enlarged size. Preferably, the inner layer or ply includes a blend of low acid ionomers and has a Shore D hardness of 60 or greater and the outer cover layer comprised of polyurethane and has a Shore D hardness of about 45 (i.e., Shore C hardness of about 65). [The present invention provides, in a first aspect, a golf ball comprising a core, an inner cover layer having particular characteristics, and an outer cover layer, also with certain features. The inner cover layer has a Shore D hardness of at least 60 and comprises a blend of two or more low acid ionomer resins, each containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid. The outer cover layer has a Shore D hardness of from about 55 to about 59, a thickness of from

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about 0.01 to about 0.07 inches, and comprises a polyurethane material.

In another aspect, the present invention provides a golf ball comprising a core, an inner cover layer, and an outer cover layer. The inner cover layer has a Shore D hardness of at least 60 and comprises a blend of two or more low acid ionomer resins, each containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid. The outer cover layer has a Shore D hardness of from about 60 to about 68, a thickness of from about 0.01 to about 0.07 inches, and comprises a polyurethane material.

In yet another aspect, the present invention provides a golf comprising a core, an inner cover layer disposed on the core, and an outer cover layer disposed on the inner cover layer. The inner cover layer has a Shore D hardness of from about 60 or more, and comprises an ionomeric resin including no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid having a modulus of from about 15,000 to about 70,000 psi. The outer cover layer has a Shore D hardness of from about 55 to about 68, a thickness of from about 0.01 to about 0.07 inches, and comprises a polyurethane material.]

Please amend the paragraph on **page 6, lines 9-14** as follows:

The combination of a low acid ionomer blend inner cover layer with a soft, relatively low modulus ionomer, polyurethane based elastomer outer cover layer provides for good overall coefficient of restitution (i.e., enhanced [excellent] resilience) while at the same time demonstrating improved compression and spin. The outer cover layer generally contributes to a more desirable feel and [high] spin, particularly at lower swing speeds with highly lofted clubs such as half wedge shots.

Please amend the title on **page 8, line 12** as follows:

Detailed Description of the Invention [Preferred Embodiments]

Please amend the paragraphs on **page 8, line 25 to page 9, line 10** as follows:

The low acid ionomers which may be suitable for use in formulating the inner layer compositions of the subject invention are ionic copolymers which are the

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metal, i.e., sodium, zinc, magnesium, etc., salts of the reaction product of an olefin having from about 2 to 8 carbon atoms and an unsaturated monocarboxylic acid having from about 3 to 8 carbon atoms. Preferably, the ionomeric resins are copolymers of ethylene and either acrylic or methacrylic acid. In some circumstances, an additional comonomer such as an acrylate ester (i.e., iso- or n-butylacrylate, etc.) can also be included to produce a softer terpolymer. The carboxylic acid groups of the copolymer are partially neutralized (i.e., approximately 10-75%, preferably 30-70%) by the metal ions. Each of the low acid ionomer resins which may be included in the inner layer cover [layer] compositions of the invention contains 16% by weight or less of a carboxylic acid.

The inner layer compositions include the low acid ionomers such as those developed and sold by E. I. DuPont de Nemours & Company under the trademark Surlyn® and by Exxon Corporation under the trademarks Escor® or tradename Iotek®, or blends thereof.

Please amend the paragraph on page 10, lines 17-25 as follows:

Preferably, the outer layer includes a blend of hard and soft (low acid) ionomer resins such as those described in U. S. Patent Nos. 4,884,814 and 5,120,791, both incorporated herein by reference. Specifically, a desirable material for use in molding the outer [cover] layer comprises a blend of a high modulus (hard), low acid, ionomer with a low modulus (soft) low acid, ionomer to form a base ionomer mixture. A high modulus ionomer herein is one which measures from about 15,000 to about 70,000 psi as measured in accordance with ASTM method D-790. The hardness may be defined as at least 50 on the Shore D scale as measured in accordance with ASTM method D-2240.

Please amend the paragraph on page 10, line 29 to page 11, line 2 as follows:

The hard ionomer resins utilized to produce the outer cover layer composition hard/soft blends include ionic copolymers which are the sodium, zinc, magnesium or lithium salts of the reaction product of an olefin having from 2 to 8

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carbon atoms and an unsaturated monocarboxylic acid having from 3 to 8 carbon atoms. The carboxylic acid groups of the copolymer may be totally or partially (i.e. approximately 15-75 percent) neutralized.

Please amend the paragraphs on page 11, lines 8-29 as follows:

As discussed earlier herein, the hard ionomeric resins introduced under the designation Escor[®] and sold under the designation Iotek[®] are somewhat similar to the hard ionomeric resins sold under the Surlyn[®] trademark. However, since the Iotek[®] ionomeric resins are sodium or zinc salts of poly(ethylene-acrylic acid) and the Surlyn[®] resins are zinc or sodium salts of poly(ethylene-methacrylic acid) some distinct differences in properties exist. As more specifically indicated in the data set forth below, the hard Iotek[®] resins (i.e., the acrylic acid based hard ionomer resins) are the more preferred hard resins for use in formulating the outer [cover] layer blends for use in the present invention. In addition, various blends of Iotek[®] and Surlyn[®] hard ionomeric resins, as well as other available ionomeric resins, may be utilized in the present invention in a similar manner.

Examples of commercially available hard ionomeric resins which may be used in the present invention in formulating the inner and outer cover blends include the hard sodium ionic copolymer sold under the trademark Surlyn[®] 8940 and the hard zinc ionic copolymer sold under the trademark Surlyn[®] 9910. Surlyn[®] 8940 is a copolymer of ethylene with methacrylic acid and about 15 weight percent acid which is about 29 percent neutralized with sodium ions. This resin has an average melt flow index of about 2.8 [gm/10 min]. Surlyn[®] 9910 is a copolymer of ethylene and methacrylic acid with about 15 weight percent acid which is about 58 percent neutralized with zinc ions. The average melt flow index of Surlyn[®] 9910 is about 0.7 [gm/10 min]. The typical properties of Surlyn[®] 9910 and 8940 are set forth below in Table 1:

Please amend Table 1 on page 12, lines 1-22 as follows:

TABLE 1
Typical Properties of Commercially Available Hard
Surlyn[®] Resins Suitable for Use in the Inner and Outer Layer

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Blends [Cover Layers] of the Present Invention

	<u>ASTM D</u>	<u>8940</u>	<u>9910</u>	<u>8920</u>	<u>8528</u>	<u>9970</u>	<u>9730</u>
Cation Type		Sodium	Zinc	Sodium	Sodium	Zinc	Zinc
Melt flow index, gms/10 min.	D-1238	2.8	0.7	0.9	1.3	14.0	1.6
Specific Gravity, g/cm ³	D-792	0.95	0.97	0.95	0.94	0.95	0.95
Hardness, Shore D	D-2240	66	64	66	60	62	63
Tensile Strength, (kpsi), MPa	D-638	(4.8) 33.1	(3.6) 24.8	(5.4) 37.2	(4.2) 29.0	(3.2) 22.0	(4.1) 28.0
Elongation, %	D-638	470	290	350	450	460	460
Flexural Modulus, (kpsi) MPa	D-790	(51) 350	(48) 330	(55) 380	(32) 220	(28) 190	(30) 210
Tensile Impact (23°C) KJ/m ² (ft.-lbs./in ²)	D-1822S	1020 (485)	1020 (485)	865 (410)	1160 (550)	760 (360)	1240 (590)
Vicat Softening Temperature, °C	D-1525	63	62	58	73	61	73

Please amend Table 2 on page 13, line 1 to page 14, line 17 as follows:

TABLE 2
Typical Properties of Iotek[®] Ionomers

Resin Properties	ASTM Method	Units	<u>4000</u>	<u>4010</u>	<u>8000</u>	<u>8020</u>	<u>8030</u>
Cation type			zinc	zinc	sodium	sodium	sodium
Melt index	D-1238	g/10 min. 2.5	1.5	0.8	1.6	2.8	
Density	D-1505	kg/m ³	963	963	954	960	960
Melting Point	D-3417	°C	90	90	90	87.5	87.5
Crystallization Point	D-3417	°C	62	64	56	53	55
Vicat Softening Point	D-1525	°C	62	63	61	64	67
% Weight Acrylic Acid			16		11		
% of Acid Groups cation neutralized			30		40		
Plaque Properties (3 mm thick, compression molded)	ASTM Method	Units	<u>4000</u>	<u>4010</u>	<u>8000</u>	<u>8020</u>	<u>8030</u>

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Tensile at break	D-638	MPa	24	26	36	31.5	28
Yield point	D-638	MPa	none	none	21	21	23
Elongation at break	D-638	%	395	420	350	410	395
1% Secant modulus	D-638	MPa	160	160	300	350	390
Shore Hardness D	D-2240	--	55	55	61	58	59

Film Properties
(50 micron film 2.2:1
Blow-up ratio)

				<u>4000</u>	<u>4010</u>	<u>8000</u>	<u>8020</u>	<u>8030</u>
Tensile at Break	MD	D-882	MPa	41	39	42	52	47.4
	TD	D-882	MPa	37	38	38	38	40.5
Yield point	MD	D-882	MPa	15	17	17	23	21.6
	TD	D-882	MPa	14	15	15	21	20.7
Elongation at Break	MD	D-882	%	310	270	260	295	305
	TD	D-882	%	360	340	280	340	345
1% Secant modulus	MD	D-882	MPa	210	215	390	380	380
	TD	D-882	MPa	200	225	380	350	345

Dart Drop Impact	D-1709	g/micron	12.4	12.5	20.3
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Resin
Properties
Cation type

	ASTM Method	Units	<u>7010</u> zinc	<u>7020</u> zinc	<u>7030</u> zinc
Melt Index	D-1238	g/10 min. 0.8		1.5	2.5
Density	D-1505	kg/m ³	960	960	960
Melting Point	D-3417	°C	90	90	90
<u>Crystallization Point</u>	<u>D-3417</u>	<u>°C</u>	—	—	—
Vicat Softening Point	D-1525	°C	60	63	62.5
<u>%Weight Acrylic Acid</u>			—	—	—
<u>% of Acid Groups Cation Neutralized</u>			—	—	—

Plaque
Properties
(3 mm thick,
compression molded)

	ASTM Method	Units	<u>7010</u>	<u>7020</u>	<u>7030</u>
Tensile at break	D-638	MPa	38	38	38
Yield Point	D-638	MPa	none	none	none
Elongation at break	D-638	%	500	420	395
<u>1% Secant modulus</u>	<u>D-638</u>	<u>MPa</u>	—	—	—
Shore Hardness D	D-2240	—	57	55	55

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Please amend the paragraphs on page 14, line 18 to page 15, line 2 as follows:

Comparatively, soft ionomers are [may be] used in formulating the hard/soft blends of the inner and outer cover compositions. These ionomers include acrylic acid based soft ionomers. They are generally characterized as comprising sodium or zinc salts of a terpolymer of an olefin having from about 2 to 8 carbon atoms, acrylic acid, and an unsaturated monomer of the acrylate ester class having from 1 to 21 carbon atoms. The soft ionomer is preferably a zinc based ionomer made from an acrylic acid base polymer in an unsaturated monomer of the acrylate ester class. The soft (low modulus) ionomers have a hardness from about 20 to about 40 as measured on the Shore D scale and a flexural modulus from about 1,000 to about 10,000, as measured in accordance with ASTM method D-790.

Certain ethylene-acrylic acid based soft ionomer resins developed by the Exxon Corporation under the designation Iotek[®] 7520 (referred to experimentally by differences in neutralization and melt indexes as LDX 195, LDX 196, LDX 218 and LDX 219) may be combined with known hard ionomers such as those indicated above to produce the inner and outer cover layers. The combination produces higher C.O.R.s at equal or softer hardness, higher melt flow (which corresponds to improved, more efficient molding, i.e., fewer rejects) as well as significant cost savings versus the inner and outer layers of multi-layer balls produced by other known hard-soft ionomer blends as a result of the lower overall raw materials costs and improved yields.

Please amend the paragraph on page 15, line 29 to page 16, line 12 as follows:

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In addition, test data collected by the inventor [Assignee] indicates that Iotek[®] 7520 resins have Shore D hardnesses of about 32 to 36 (per ASTM D-2240), melt flow indexes of 3 ± 0.5 g/10 min (at 190°C. per ASTM D-1288), and a flexural modulus of about 2500-3500 psi (per ASTM D-790). Furthermore, testing by an independent testing laboratory by pyrolysis mass spectrometry indicates that Iotek[®] 7520 resins are generally zinc salts of a terpolymer of ethylene, acrylic acid, and

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methyl acrylate.

Furthermore, the inventor [it] has [been] found that a newly developed grade of an acrylic acid based soft ionomer available from the Exxon Corporation under the designation Iotek[®] 7510, is also effective, when combined with the hard ionomers indicated above in producing golf ball covers exhibiting higher C.O.R. values at equal or softer hardness than those produced by known hard-soft ionomer blends. In this regard, Iotek[®] 7510 has the advantages (i.e. improved flow, higher C.O.R. values at equal hardness, increased clarity, etc.) produced by the Iotek[®] 7520 resin when compared to the methacrylic acid base soft ionomers known in the art (such as the Surlyn[®] 8625 and the Surlyn[®] 8629 combinations disclosed in U.S. Patent No. 4,884,814).

Please amend the paragraph on page 17, lines 14-20 as follows:

It has been determined that when hard/soft [high acid/low acid] ionomer blends are used for the outer cover layer[s], good results are achieved when the relative combination is in a range of about 90 to about 10 percent hard ionomer and about 10 to about 90 percent soft ionomer. The results are improved by adjusting the range to about 75 to 25 percent hard ionomer and 25 to 75 percent soft ionomer. Even better results are noted at relative ranges of about 60 to 90 percent hard ionomer resin and about 40 to 60 percent soft ionomer resin.

Please amend the paragraph on page 18, lines 6-15 as follows:

Other soft, relatively low modulus non-ionomeric thermoplastic elastomers may also be utilized to produce the outer cover layer as long as the non-ionomeric thermoplastic elastomers produce the playability and durability characteristics desired without adversely effecting the enhanced spin characteristics produced by the low acid ionomer resin compositions. These include, but are not limited to thermoplastic polyurethanes such as: Texin[®] thermoplastic polyurethanes from Mobay Chemical Co. and the Pellethane[®] thermoplastic polyurethanes from Dow Chemical Co.; Ionomer/rubber blends such as those in Spalding U.S. Patents 4,986,545; 5,098,105 and 5,187,013; and, Hytrel[®] polyester elastomers from DuPont

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and Pebax[®] polyester[ether]amides from Elf Atochem S.A.

Please amend the paragraph on page 18, line 23 to page 19, line 9 as follows:

<u>Property</u>	<u>ASTM Test Method</u>	<u>Unit</u>	<u>Value</u>
Tear Strength Die C	D624	pli[psi]	180
Stress at			
100% Modulus	D412	psi	320
200% Modulus			460
300% Modulus			600
Ultimate Strength	D412	psi	900
Elongation at Break	D412	%	490
Taber Abrasion	D460, H-18	mg/1000 cycles	350

<u>Component¹ Properties</u>	<u>Part A (Isocyanate)</u>	<u>Part B (Resin)</u>
Viscosity @ 25°C, mPa-s	2500	2100
Density @ 25°C, g/cm	1.08	1.09
NCO, %	9.80	-----
Hydroxyl Number, Mg KOH/g	-----	88

¹Component A is a modified diphenylmethane diisocyanate (MDI) prepolymer and component B is a polyether polyol blend.

Please amend the paragraph on page 20, lines 12-25 as follows:

The various cover composition layers of the present invention may be produced according to conventional melt blending procedures. In the case of the outer cover layer, when a blend of hard and soft, low acid ionomer resins are utilized, the hard ionomer resins are blended with the soft ionomeric resins and with a masterbatch containing the desired additives in a Banbury mixer, two-roll mill, or extruder prior to molding. The blended composition is then formed into slabs and maintained in such a state until molding is desired. Alternatively, a simple dry blend of the pelletized or granulated resins and color masterbatch may be prepared and fed directly into the injection molding machine where homogenization occurs in the

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mixing section of the barrel prior to injection into the mold. If necessary, further additives such as an inorganic filler, etc., may be added and uniformly mixed before initiation of the molding process. A similar process is utilized to formulate the low [high] acid ionomer resin compositions used to produce the inner cover layer.

Please amend the paragraph on **page 21, lines 18-22** as follows:

The resulting golf ball produced from the low acid ionomer resin inner layer and the relatively softer, low flexural modulus outer layer provide for an improved multi-layer golf ball which provides for desirable coefficient of restitution, compression, spin and durability properties while at the same time offering the feel [and spin] characteristics associated with soft balata and balata-like covers of the prior art.

Please amend the paragraph on **page 22, line 32 to page 23, line 2** as follows:

Coefficient of restitution (C.O.R.) was measured by firing the resulting golf ball in an air cannon at a velocity of 125 feet per second against a steel plate positioned 12 feet from the muzzle of the canon. The rebound velocity was then measured. The rebound velocity was divided by the forward velocity to give a coefficient of restitution. [Details for this procedure are set forth in U.S. Patent 5,984,806, herein incorporated by reference.]

Please amend the paragraph on **page 23, lines 28-30** as follows:

The purpose behind producing and testing the balls of Table 5 [11] was to provide a subsequent comparison in properties with the multi-layer golf balls of the present invention.

Please amend the paragraph on **page 25, lines 3-18** as follows:

With the above in mind, an outer cover layer composition was blended together in accordance with conventional blending techniques. The outer layer composition used for this portion of the example is a relatively soft cover composition such as those listed in U.S. Patent No. 5,120,791. An example of such a soft cover

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composition is a 45% soft/55% hard low acid ionomer blend designated by the inventor as "TE-90". The composition of TE-90 is set forth [below in Table 12] as follows:

Outer Cover Layer Composition TE-90

Iotek® 8000	22.7 weight %
Iotek® 7030	22.7 weight %
Iotek® 7520	45.0 weight %
White MB ¹	9.6 weight %

¹White MB consists of about 23.77 weight percent TiO₂; 0.22 weight percent Uvitex® OB, 0.03 weight percent Santonox® R, 0.05 weight percent Ultramarine Blue™ and 75.85 weight percent Iotek® 7030.

Please amend the paragraph on page 26, lines 13-24 as follows:

As it will be noted in finished balls 1-4, by creating a multi-layer cover utilizing the high acid ionomer resins in the inner cover layer and the hard/soft low acid ionomer resin in the outer cover layer, [generally] higher compression and increased spin rates are noted over the single layer covers of Table 5 [11]. In addition, both the C.O.R. and the Shore C hardness are reduced over the respective single layer covers of Table 5 [11]. This was once again particularly true with respect to the multi-layered balls containing the high acid ionomer resin in the inner layer (i.e. finished balls 1-4). In addition, with the exception of prior art ball 5 (i.e. the '193 patent), resistance to cutting remains good but is slightly decreased. As noted above, the prior art ball of the '193 patent suffers substantially in durability (as well as in resiliency) in comparison to the balls of the [present] invention.

Please amend Table 6B on page 27, lines 10-23 as follows:

TABLE 6B
Finish[ed] Balls

<u>Ingredients:</u>	<u>6</u>	<u>7</u>
Inner Cover Layer Composition	A	D
Outer Cover Layer Composition	Estane® 4517	Suriyn® 9020

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Properties of
Molded Finished Balls:

Compression	67	61
C.O.R.	.774	.757
Shore C Hardness	74	89
Spin (R.P.M.)	10,061	8,846
Cut Resistance	3-4	1-2

Please amend the paragraph on page 30, lines 1-9 as follows:

In this regard, Top Grade or TG is a low acid inner cover ionomer resin blend comprising of 70.6% Iotek® 8000, 19.9% Iotek® 7010 and 9.6% white masterbatch. "959/960" is a 50/50 wt/wt blend of Iotek® 959/960. In this regard, Escor® or Iotek® 959 is a sodium ion neutralized ethylene-acrylic neutralized ethylene-acrylic acid copolymer. According to Exxon, Ioteks® 959 and 960 contain from about 19.0 to about 21.0% by weight acrylic acid with approximately 30 to about 70 percent of the acid groups neutralized with sodium and zinc ions, respectively. The physical properties of these high acid acrylic acid based ionomers are as follows:

Please amend the paragraph on page 30, line 29 to page 31, line 6 as follows:

The data clearly indicates that higher C.O.R. and hence increase[d] travel distance can be obtained by using multi-layered covered balls versus balls covered with single layers. However, some sacrifices in compression and spin are also noted. Further, as shown in comparing Example Nos. 12 vs. 13, Example Nos. 17 vs. 16, etc., use of lower acid level inner cover layers and relatively soft outer cover layers (i.e., 50 wt. % or more soft ionomer) produces softer compression and higher spin rates than the golf balls comprised of high acid inner cover layers. Consequently, use of blends of low acid ionomer resins to produce the inner layer of a multi-layer covered golf ball produces not only enhanced travel distance but also enhanced compression and spin properties.

Please amend the paragraph on page 32, lines 22-30 as follows:

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The mantle core is 1.57" and fits snugly in the 1.57" cavity. The hose clamp is attached to the 1.57" cavity and a mantle core is placed in inside. Urethane is mixed and poured into one of the dimpled cavities and the two halves are placed together and clamped, forcing out excess material and forming half the cover. The hose clamp is used to keep the two mold halves aligned during curing. When the cover material is set up enough (about 5 minutes), the two halves are separated and the 1.57" mold is replaced with the other 1.68" mold and the process is repeated. Both halves of the cover are now cast and the entire assemble[y] is placed in an 125°F oven for 1 hour after which it can be opened and the ball removed.

Please amend Table 9 on page 33, lines 1-23 as follows:

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TABLE 9

<u>Core Data</u>		23	23[24]	24[25]	25[26]	26[27]	27[28]	28[29]	29[30]
Size	1.47"	1.47"	1.47"	1.47"	1.47"	1.47"	1.47"	1.47"	1.47"
Weight	32.2	32	32	32.2	32	37.7	32.2	32	32.2
Comp	82	58	58	82	58	85	82	58	82
COR	768	772	772	768	772	794	768	772	768
<u>Mantle Data</u>									
Material	lotek [®]	lotek [®]	lotek [®]	lotek [®]	lotek [®]	None	lotek [®]	lotek [®]	lotek [®]
Weight	8030/7030	8030/7030	8030/7030	8030/7030	8030/7030		8030/7030	8030/7030	8030/7030
Size	37.8	38.1	37.9	38.1	37.9		37.8	38.1	37.9
Comp	1.57"	1.57"	1.57"	1.57"	1.57"		1.57"	1.57"	1.57"
COR	70	48	69	48	70		70	48	69
	781	785	786	788	781		781	785	786
<u>Ball Data</u>									
Cover Material	Baytec [®] RE832	Baytec [®] RE832	Baytec [®] RE832	Baytec [®] RE832	Baytec [®] RE832	Z-Balata	Z-Balata	Z-Balata	Z-Balata
Weight	45.4	45.5	45.5	45.2	45.3		44.8	45	
Comp	75	64	73	60	80		66	50	65
COR	771	763	770	761	792		775	774	778
Shore C	65	65	65	65	84		84	84	84
Spin (rpm)	9560	8789	9285	8760	8796		8702	9072	8643
Cut (1-good, 4-poor)	2	2	2	1.5	2		2	2	2
Scuff (1-good, 4-poor)	1.5	1.5	1.5	1.5	2		3	3	3

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Please amend the paragraph on page 34, lines 12-17 as follows:

The invention has been described with reference to the preferred embodiment[s]. Obviously, modifications and alterations will occur to others upon reading and understanding the preceding detailed description. It is intended that the invention be construed as including all such modifications and alterations insofar as they come within the scope of the appended claims or the equivalents thereof.

IN THE CLAIMS:

Please delete claims 2 to 3, 7 and 12 to 14 without prejudice or disclaimer of the subject matter contained therein.

Please amend claims 1, 6, 8, 11 and 15 as follows:

1. (Amended) A golf ball comprising:

a core;

an inner cover layer disposed on said core, said inner cover layer having a Shore D hardness of at least 60, said inner cover layer comprising a blend of two or more low acid ionomer resins, each containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid; and

an outer cover layer disposed on said inner cover layer, said outer cover layer having a Shore D hardness of [from about 55 to about 59] about 64 or less, a thickness of from about 0.01 to about 0.07 inches, and comprising a polyurethane material.

6. (Amended) A golf ball comprising:

a core;

an inner cover layer disposed about said core, said inner cover layer having a Shore D hardness of at least 60, said inner cover layer comprising a blend of two or more ionomeric resins, each containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid; and

an outer cover layer disposed on said inner cover layer, said outer

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cover layer having [a Shore D hardness of from about 60 to 68,] a thickness of from about 0.01 to about 0.07 inches, and comprising a polyurethane material.

8. (Amended) The golf ball of claim 6 wherein said outer cover exhibits a Shore D hardness of [from about 63 to] about 64 or less.

11. (Amended) A golf ball comprising:

a core;

an inner cover layer disposed on said core, said inner cover layer having a Shore D hardness of about 60 or more, said inner cover layer comprising an ionomeric resin including no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid and having a modulus of [from] greater than about 15,000 [to about 70,000] psi; and

an outer cover layer disposed about said inner cover layer, said outer cover layer having [a Shore D hardness of from about 55 to about 68,] a thickness of from about 0.01 to about 0.07 inches, and comprising a polyurethane material.

15. (Amended) The golf ball of claim 11 wherein said outer cover exhibits a Shore D hardness of [from about 63 to] about 64 or less.

IN THE ABSTRACT:

Please amend the title on page 38 to read as follows:

**IMPROVED MULTI-LAYER GOLF BALL [HAVING MULTI-LAYER COVER WITH
UNIQUE INNER COVER CHARACTERISTICS]**



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